## REMARKS/ARGUMENTS

The claims are 1-8. Claims 1 and 4-8 were provisionally rejected on the grounds of non-statutory obviousness-type double patenting as being unpatentable over claims 1, 4, 5 and 7-10 of co-pending Application Serial No. 10/583,572 in view of *Tagamolila U.S. Patent No. 5,043,500*. Essentially the Examiner's position was that claims 1 and 4-8 were not patentably distinct from claims 1, 4, 5 and 7-10 of the '572 application because the '572 application was said to disclose all the limitations of the claims, except mainly radial flow of the gas mixture through a catalyzer packing, which was said to be shown by *Tagamolila*.

This rejection is respectfully traversed and reconsideration is expressly requested.

As set forth in claims 1 and 5, Applicant's invention provides a method for nozzle jetting of oxygen into a synthesis reactor, e.g. for oxi-dehydration, with mainly radial flow of the gas mixture through a catalyzer packing and a device for conducting that method. In contrast, claims 1 and 5 of the

co-pending *Kowoll et al.* '572 application are directed to a method for nozzle jetting of oxygen into a synthesis reactor, e.g. for oxy-dehydration, for largely axial flow of the gas mixture through a catalyst bed and a device for conducting that method. It is respectfully submitted that a radial reactor is completely different from an axial reactor, which is much cheaper for instance than an axial reactor to which the claims of the *Kowoll et al.* '572 application are directed. Moreover, it is respectfully submitted that one skilled in the art would have no reason to combine the secondary reference to *Tagamolila* in which a mixture streams radially through two different kinds of catalyzers into the axial reactor to which the *Kowoll et al.* '572 claims are directed.

Accordingly, it is respectfully submitted that claims 1, 4, 5 and 7-10 of the co-pending *Kowoll et al.* '572 application fail to disclose or suggest the method for nozzle jetting of oxygen into a synthesis reactor with mainly radial flow of the gas mixture through a catalyzer packing and a device for conducting same as recited in Applicant's claims 1 and 5, and that these

claims and claims 4 and 6-8, which depend on claims 1 and 5, respectively, are patentably distinct from claims 1, 4, 5 and 7-10 of the co-pending *Kowoll et al. '572* application, whether considered alone or in combination with *Tagamolila*. Accordingly, it is respectfully submitted that the provisional double patenting rejection should be withdrawn.

Claims 1-4 were rejected under 35 U.S.C. 103(a) as being unpatentable over *Tagamolila* in view of *Mendelsohn et al. U.S. Patent No. 3,855,330*, *Smith et al. U.S. Patent No. 4,223,843*, and *Skraba U.S. Patent No. 4,994,239*. The remaining claims 5-8 were rejected under 35 U.S.C. 103(a) as being unpatentable over *Tagamolila*, *Mendelsohn et al.*, *Smith et al.*, and *Skraba* and further in view of *Bahnisch EP 0 364 664*.

This rejection is respectfully traversed.

As set forth in claim 1, Applicant's invention provides a method for nozzle jetting of oxygen into a synthesis reactor, e.g. for oxi-dehydration, with mainly radial flow of the gas

mixture through a catalyzer packing, wherein oxygen is added to a ring distributor system in pure form, as air or mixed with inert gas or water vapor, and is then jetted on to the catalyzer surface at an angle to the vertical through several exit openings in the ring distributor system. In this way, Applicant's invention provides a method that improves the entry and mixing of oxygen before entering into the catalyzer.

The primary reference to *Tagamolila* fails to disclose or suggest a method for nozzle jetting of oxygen into a synthesis reactor in which oxygen is added to a ring distributor system and is then jetted on to the catalyzer surface at an angle to the vertical through several exit openings in the ring distributor system. In *Tagamolila's* system, steam and feed gas are dehydrated in the first reactor, a mixture of oxygen-containing gas and oxygen are mixed to the exit gas, for which a distributor 58 and a static mixture 60 are used, the mixture streams into the central pipe of a reactor, and then radially through two different kinds of catalyzers -- first through oxidation catalyzer 64 and then through dehydrating catalyzer 66.

Although the Examiner has taken the position at page 4 of the Office Action that *Tagamolila* discloses a method "where oxygen is added to a distributor system as a mixture of oxygen, effluent, and steam, and is then jetted on the catalyzer surface at an angle through several exit openings in the distributor system..." it is respectfully submitted that the Examiner's position is unfounded.

From the distributor 58 of *Tagamolila*, the oxygen-containing mixture is first inserted via a nozzle into the empty container zone 30 and mixed with the gas flowing out from 28, then further mixed in the mixer 60, and only then guided into the central pipe 62 which supplies the inner catalyzer layer 64. See column 7, lines 9-22 and the sole figure of *Tagamolila*.

The oxygen-containing mixture streaming out of the distributor 58 is not directed to the catalyzer surface. Rather, the discharge takes place in another room, and the static mixer

60 is an insurmountable obstacle for the nozzled-in rays. The oxygen-containing mixture is present in zone 30, in the mixer 60 and in the vertical distributor pipe 62 -- resulting in a long duration.

The defects and deficiencies of the primary reference to *Tagamolila* are nowhere remedied by the secondary references to *Mendelsohn et al.*, *Smith et al.*, *Skraba* and *Bahnisch*.

*Smith et al.* discloses an air distribution system in which air or an oxygen-containing gas is fed directly into a catalyzer layer in order to burn coke deposits on the catalyzer and to regenerate the catalyzer by way of a ring-shaped distributor on which several nozzles are mounted, having a widening cross section in order to slow down the discharging gas. It is respectfully submitted that there is no mixture of gases in *Smith et al.* after feeding by nozzles. At surface-covering gas delivery, ring distributors are clearly more expensive than straight distributor pipes. Thus, *Smith et al.'s* arrangement suffers from a number of disadvantages.

*Skraba* relates to a catalyst regeneration system in which air or an oxygen-containing gas is distributed in a total round horizontal cross section of the regenerator by means of a branched distributor and fed directly into a turbulence layer in order to burn coke deposits on the catalyzer and thereby to regenerate the catalyzer. There is no disclosure or suggestion of a mixture of gases after feeding by nozzles in *Skraba's* arrangement.

*Mendelsohn et al.* is directed to an axial reactor for dehydration of ethyl benzene in which several layers are disposed over each other of two kinds of catalysts for dehydration and for oxidation of hydrogen. Although feeding of oxygen/air into the layers for oxidizing is mentioned, no details are shown in *Mendelsohn et al.* Thus, it is respectfully submitted that *Mendelsohn et al.* is even further afield.

The remaining reference to *Bahnisch* has been considered but is believed to be no more pertinent. *Bahnisch* discloses a reactor for undertaking catalytic gas reactions, for example

methanol synthesis with a plurality of feedings which are arranged over the height of the reactor and lead into the catalyzer. Vertical nozzle pipes with lateral nozzle openings are surrounded by a perforated covering. There is no disclosure or suggestion of a mixture of gases after feeding by nozzles in *Bahnisch's* arrangement.

Accordingly, it is respectfully submitted that claim 1 with claims 2-4 which depend thereon, and claim 5 which is directed to a device for conducting the method of claim 1, and claims 6-8 which depend on claim 5, are patentable over the cited references.

In view of the foregoing, it is respectfully requested that the claims be allowed and that this application be passed to issue.

Applicant also submits herewith a Supplemental Information Disclosure Statement.

Respectfully submitted,
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Enclosures: Supplemental Information Disclosure Statement, Form PTO-1449 with four (4) references, Check in the amount of $180.00

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Amy Klein

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